AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A multi-channel image encoding apparatus for selectively receiving image signals transmitted through a plurality of input channels and encoding the image signals, comprising:

a channel data processor comprising a frame buffer group including a plurality of frame buffers for each input channel in order to receive a plurality of frame data through the plurality of input channels and to store the plurality of frame data, the channel data processor for selecting data transmitted to the frame buffer group to output the selected data, the channel data processor storing each unit of the frame data into the frame buffer group corresponding to each channel in accordance with a set-up input channel selection order; and

an encoder for encoding image signals output from the channel data processor with a Moving Picture Experts Group method.

2. (Currently Amended) The multi-channel image encoding apparatus of claim 1, further comprised of ~~the channel data processor storing each unit of the frame data into the frame buffer group corresponding to each channel in accordance with a set-up input channel selection order, and~~ outputting the plurality of frame data stored in the frame buffer group to the encoder for each

channel.

3. (Original) The multi-channel image encoding apparatus of claim 1, with the channel data processor comprising:

a first multi-switch unit for selectively contacting each of the input channels with the frame buffer group of corresponding to each of the input channels; and

a second multi-switch unit for selectively contacting with the frame buffer group and outputting data output from the frame buffer group to the encoder.

4. (Original) The multi-channel image encoding apparatus of claim 3, further comprised of the first multi-switch unit storing each unit of the frame data into the frame buffer group corresponding to the input channels in accordance with a set-up input channel selection order, and the second multi-switch unit contacting with the frame buffer group in accordance with a set-up channel contact order and outputting the plurality of frame data stored in the contacted frame buffer group for each of the input channels.

5. (Original) The multi-channel image encoding apparatus of claim 4, with the encoder comprising:

a discrete cosine transformer for performing a discrete cosine transform with respect to the image signals input from the second multi-switch unit;

a quantizer for quantizing signals output from the discrete cosine transformer and outputting

the quantized signals;

an inverse quantizer for inversely quantizing the quantized signals;

an inverse discrete cosine transformer for performing an inverse discrete cosine transform with respect to the inversely quantized signals;

a prediction memory;

an adder for adding data output from the prediction memory and the inversely discrete cosine transformed data, and outputting the added data to the prediction memory; and

a subtracter for subtracting data output from the prediction memory from signals input through the second multi-switch unit, and outputting the subtracted signal to the discrete cosine transformer.

6. (Original) The multi-channel image encoding apparatus of claim 5, with the encoder further comprising:

a variable length encoder for performing a variable length encoding with respect to signals output from the quantizer, and outputting the encoded signals; and

a parser for loading channel information about each frame to signals output from the variable length encoder, and outputting the signals.

7. (Original) The multi-channel image encoding apparatus of claim 3, further comprising:

a channel selection unit including a key for setting up a channel select pattern in regard to the plurality of input channels; and

a channel controller for controlling the first multi-switch unit and the second multi-switch unit in accordance with the channel select pattern set up by the channel selection unit.

8. (Original) An encoding method of a multi-channel image encoding apparatus for selectively receiving image signals transmitted through a plurality of input channels and encoding the image signals, comprising the steps of:

selecting the input channels in accordance with a set-up order to receive a unit frame data for the input channels;

storing the signals input through the selected input channels;

outputting the plurality of frame data stored for each channel in accordance with a set-up selection order; and

encoding a plurality of frame data output for each channel.

9. (Original) A multi-channel image encoding apparatus for encoding image signals input through a plurality of input channels, comprising:

a channel data processor for selectively contacting with the plurality of input channels and selectively outputting transmitted image signals for each of the input channels; and

an encoder for encoding signals output from the channel data processor by using a previous frame data stored in a prediction memory provided for each corresponding channel.

10. (Original) The multi-channel image encoding apparatus of claim 9, with the channel data

processor comprising:

a first multi-switch unit for selectively contacting the input channels with frame buffer corresponding to each of the input channels; and

a second multi-switch unit for selectively contacting with the frame buffer and outputting data output from the frame buffer to the encoder.

11. (Original) The multi-channel image encoding apparatus of claim 10, with the encoder comprising:

a discrete cosine transformer for performing a discrete cosine transform with respect to the input image signals;

a quantizer for quantizing signals output from the discrete cosine transformer:

an inverse quantizer for inversely quantizing the quantized signals;

an inverse discrete cosine transformer for performing an inverse discrete cosine transform with respect to the inversely quantized signals;

an adder for adding data output from the selected prediction memory and the inversely discrete cosine transformed data, and outputting the added data to the prediction memory of corresponding channels;

a subtracter for subtracting data output from the prediction memory from signals input through the second multi-switch unit, and outputting the subtracted signal to the discrete cosine transformer; and

a prediction memory selection unit for controlling the prediction memory of channels

corresponding to the selected channels by the second multi-switch unit to be contacted between the adder and the subtracter.

12. (Original) The multi-channel image encoding apparatus of claim 11, with the encoder comprising:

a variable length encoder for performing a variable length encoding with respect to signals output from the quantizer; and

a parser for loading channel information about each frame to signals output from the variable length encoder, and outputting the signals.

13. (Original) The multi-channel image encoding apparatus of claim 11, further comprising:

a channel selection unit having a key for setting up a channel select pattern in regard to the plurality of input channels; and

a channel controller for controlling the first multi-switch unit, the second multi-switch unit, and the prediction memory in accordance with the channel select pattern set up by the channel selection unit.

14. (Original) An encoding method of multi-channel image encoding apparatus for selectively receiving image signals transmitted through a plurality of input channels and encoding the image signals, comprising the steps of:

outputting unit frame data transmitted corresponding to the set-up input channel selection

order for each channel to the encoder;

selecting a prediction memory of channels corresponding to the input unit frame data among the prediction memory with numbers corresponding to the number of the input channels; and

encoding by using the data previously stored in the prediction memory and frame data of the current input channel.

15. (Original) A multi-channel image encoding apparatus for encoding image signals input through a plurality of input channels, comprising:

a channel data processor for selectively contacting with the plurality of input channels and selectively outputting transmitted image information for each of the input channels; and

an encoder for calculating a similarity by comparing image signals output from the channel data processor and the previous frame data stored in the frame memory provided for corresponding channels, and selecting one mode among a plurality of encoding modes set up differently for each other in regard to the present frame data in accordance with the calculated similarity and encoding according to the selected encoding mode.

16. (Original) The multi-channel image encoding apparatus of claim 15, with the plurality of encoding modes comprising:

a first mode for encoding the present frame data with an intra coding method; and

a second mode for encoding data gained by subtracting the previous frame data from the present frame data.

17. (Original) The multi-channel image encoding apparatus of claim 16, with the encoder comprising:

an encode unit for encoding; and

a similarity calculation unit for determining a corresponding encoding mode by calculating the similarity, controlling the encode unit to perform the determined encoding mode, and outputting determined encoding mode information.

18. (Original) The multi-channel image encoding apparatus of claim 15, with the data processor comprising:

a first multi-switch unit for selectively contacting each of the input channels with frame buffer of corresponding channels; and

a second multi-switch unit for selectively contacting with the frame buffer, and outputting data output from the frame buffer to the encoder.

19. (Currently Amended) The multi-channel image encoding apparatus of claim 18, with the encoder comprising:

an intra frame coder for intra coding with respect to input image signals;

an intra frame decoder for decoding with respect to signals output from the intra frame coder;

an adder for adding data output from the selected frame memory and data output from the intra frame decoder, and outputting the added data to the frame memory of corresponding channels;

a subtracter for subtracting data output from the selected frame memory from signals input through the second multi-switch unit and outputting the subtracted signal to the intra frame coder; and

a frame memory selection unit for controlling the frame memory of channels corresponding to channels selected by the second multi-switch unit ~~in order~~ accommodating to be contacted between the adder and the subtracter by being controlled by the similarity calculation unit.

20. (Original) The multi-channel image encoding apparatus of claim 17, further comprised of the similarity calculation unit calculating a similarity by comparing previous screen data stored in the selected frame memory by the frame memory selection unit and frame data of a selected channel by the second multi-switch unit with a set-up macro block unit, and determining an encoding mode with the macro block unit.

21. (Original) The multi-channel image encoding apparatus of claim 20, further comprised of the similarity calculation unit determining a calculated similarity as the first mode, when the calculated similarity is greater than a set-up reference value, and as the second mode, when the calculated similarity is less than a set-up reference value.

22. (Original) The multi-channel image encoding apparatus of claim 19, further comprising:

a channel selection unit for setting up a channel select pattern to encode in regard to the plurality of input channels; and

a channel controller for controlling the first multi-switch unit, the second multi-switch unit, and the frame memory selection unit to encode received images in accordance with a channel select pattern selected by the channel selection unit.

23. (Original) An encoding method of multi-channel image encoding apparatus for selectively receiving image signals transmitted through a plurality of input channels and encoding the image signals, comprising the steps of:

outputting unit frame data for each channel to the encoder by selecting the input channels in accordance with a set-up encode order;

selecting frame memory of channels corresponding to input unit frame data among frame memory having numbers corresponding to the number of input channels;

calculating a similarity by comparing data previously stored in selected frame memory with frame data of currently inputted channels; and

encoding the present frame data by intra coding method, when the similarity is less than a set-up reference value.

24. (Original) The encoding method of multi-channel image encoding apparatus of claim 23, further comprised of the similarity being greater than the reference value, then data gained by subtracting previous data from present data is encoded.

25. (Original) The encoding method of multi-channel image encoding apparatus of claim

23, further comprised of the similarity calculation being performed with a set-up macro block unit.